

# THE USE OF BYPRODUCTS AND HIGH FIBER INGREDIENTS IN SWINE DIETS

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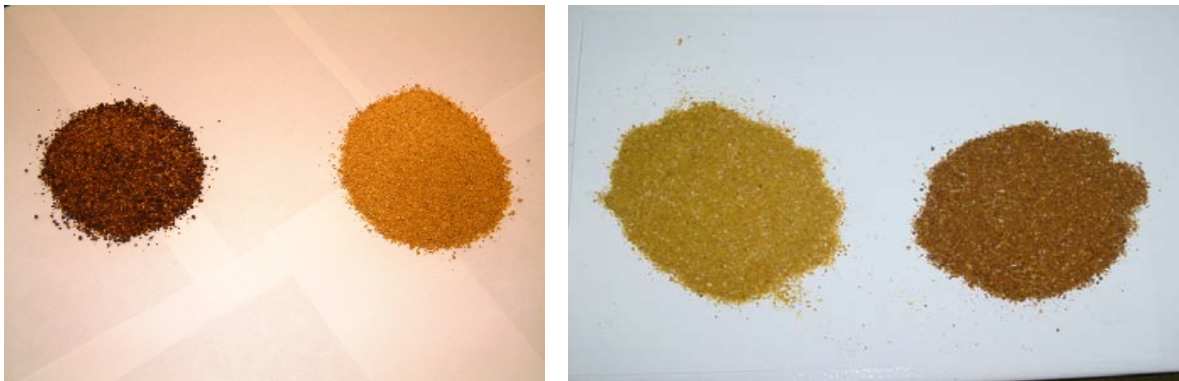
## INTRODUCTION

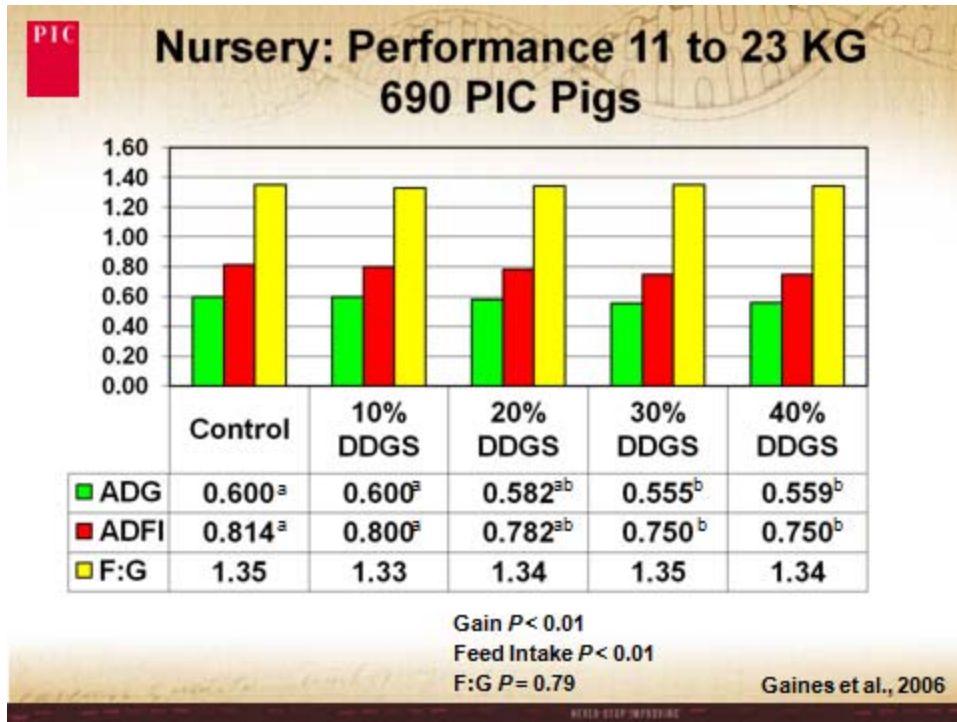
With increasing feed costs, many producers are looking for alternative feedstuffs to use in their operations to help reduce the cost of production. Some alternative feedstuffs include ingredients that also have a high level of fiber. The two main byproducts that we will focus on will be distiller's dried grains with solubles (DDGS) and wheat midds or shorts.

There has been many commercial and university research trials conducted using DDGS. Many trials have demonstrated similar growth responses when DDGS were fed compared to a corn-soybean meal based diet. However, many trials have demonstrated a decrease in growth performance. Some of the differences can be a result of inconsistency of the nutrients from byproducts like DDGS. The ethanol process can differ from plant to plant and therefore the byproduct can be very different from plant to plant. DDGS nutrient levels can be very variable from plant to plant.

If DDGS are fed, make sure the nutrients from that source are well known. Using one source of DDGS is ideal so you can maintain a consistent source of nutrients to the pig.

Below is a picture of four different DDGS sources. The difference in color is noticeable. When ethanol plants burn DDGS during the drying process amino acid digestibility may be reduced and pigs' performance will be reduced.

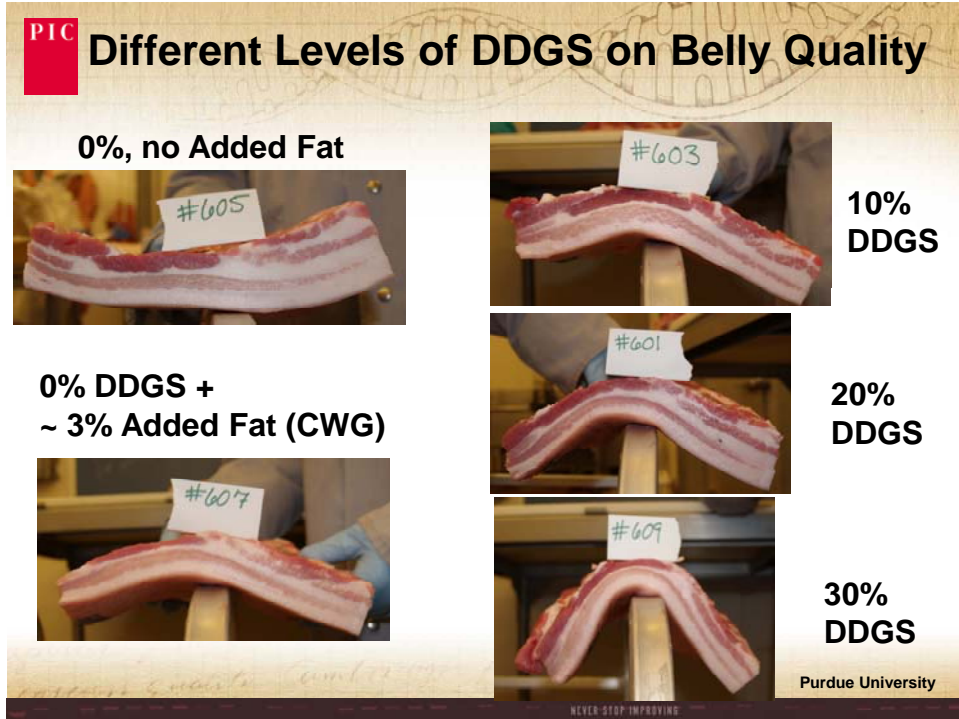




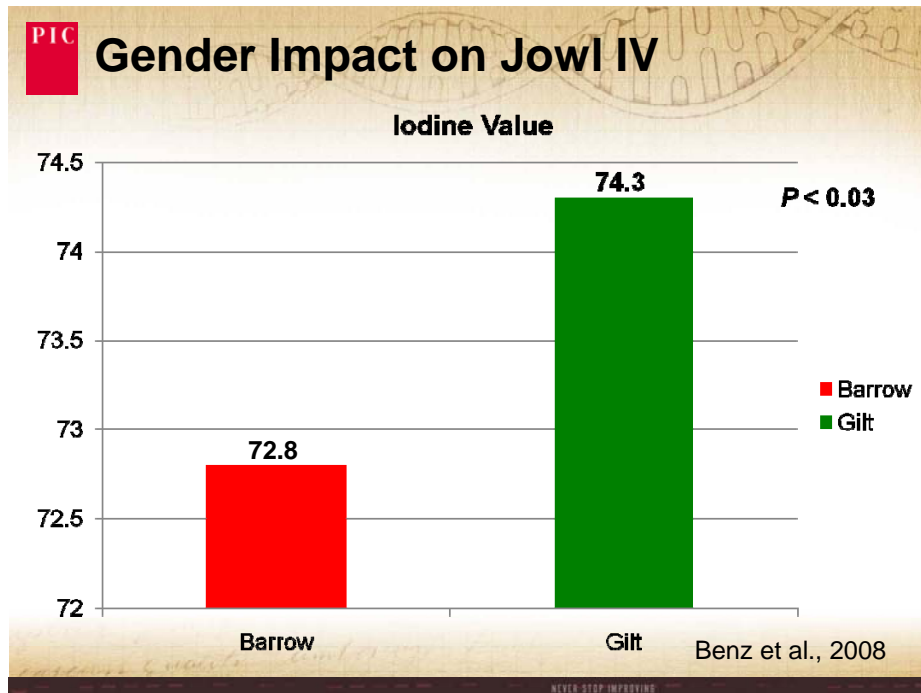
## FEEDING BYPRODUCTS

One of the biggest areas of caution is how to introduce byproducts to your pigs. You should not introduce too fast as the pigs need a time of adjustment to the new ingredient. That may be why some research trials showed a decrease in growth at high levels of DDGS because the pigs went from a corn-soybean meal diet to DDGS with a sudden diet change. Introducing byproducts slowly will allow the pigs to adjust to the new feed without them going off feed. Most producers start at 5% then increase at the next diet phase change another 5%. Changing too fast will cause off-feed pigs and poor growth.

Iodine Value (IV) is a measurement to estimate the amount of unsaturated fatty acids in carcass fat. In other words, IV is an indicator of fat firmness. Nutrition can affect carcass fat firmness by what ingredients the pigs are fed. Ingredients like soy oil and DDGS can have a major impact. Some packers have started testing and put an IV spec of 73 in place.

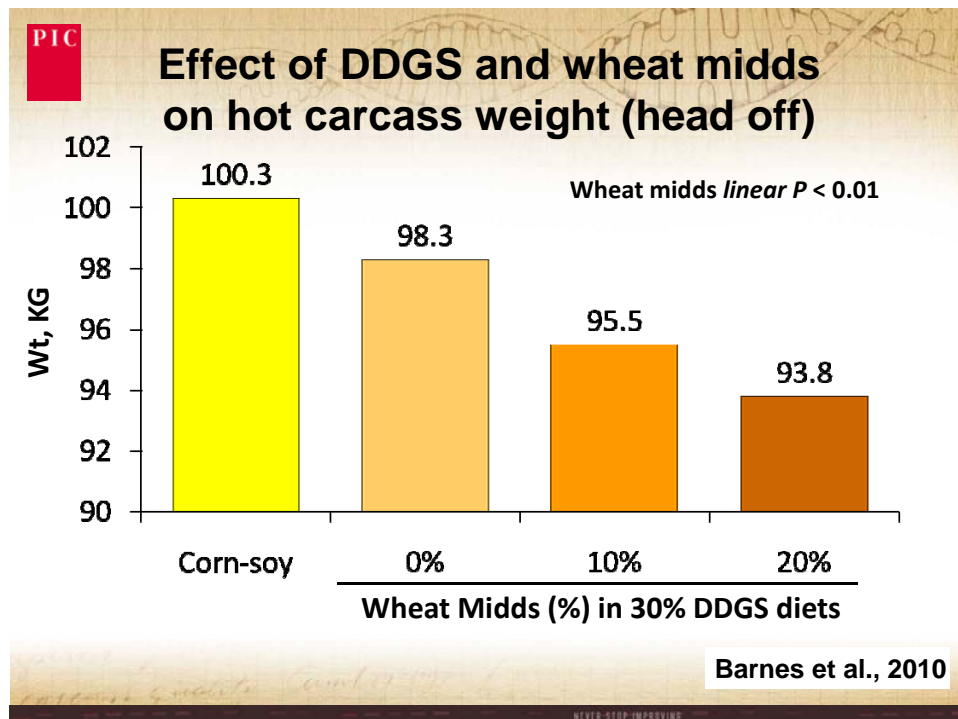
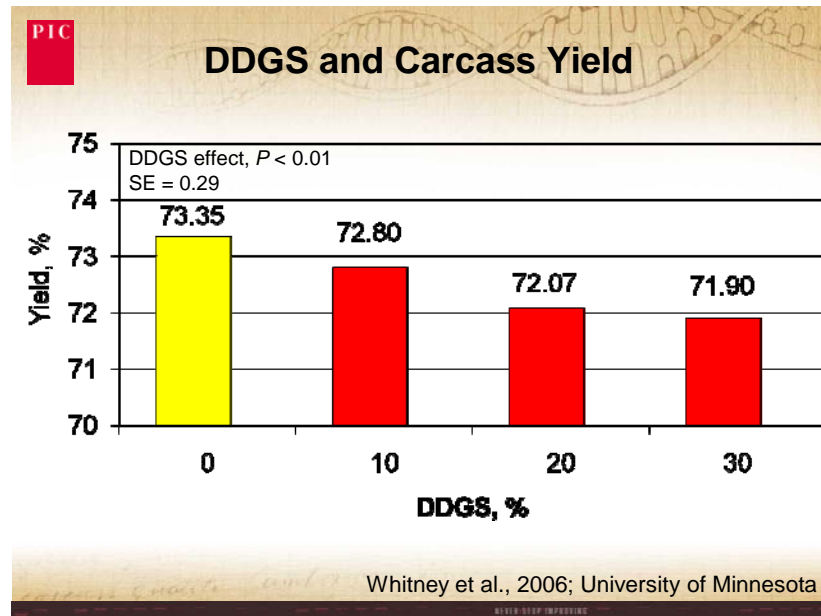


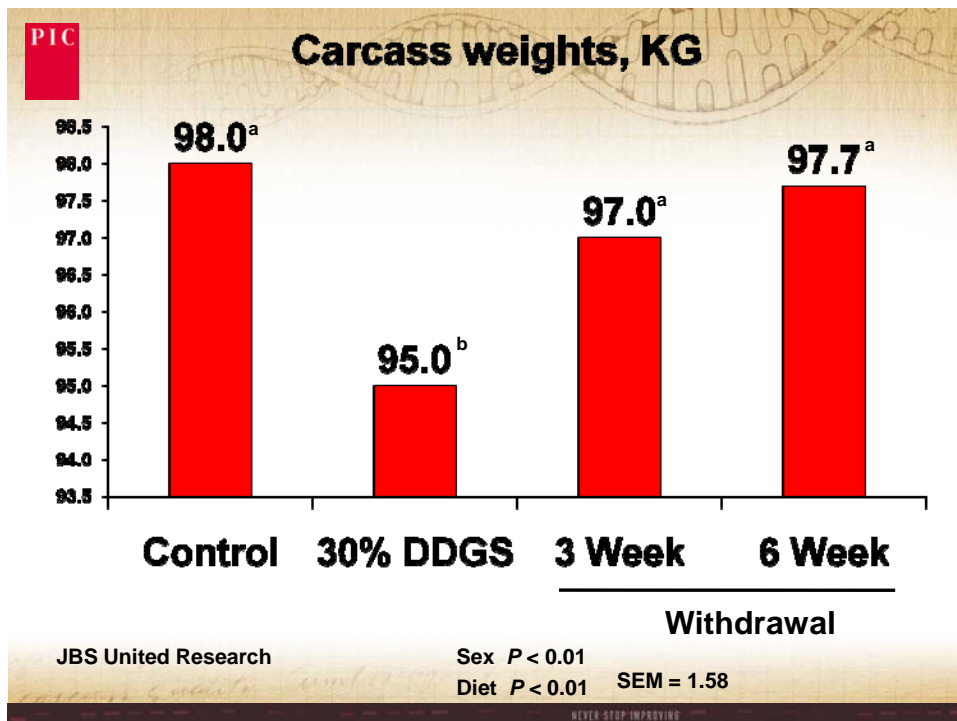
Other factors can impact IV such as gender, grain source and season.



## Effects of Nutrition on Carcass Yield

Another area of caution when using byproducts, like DDGS and wheat midds, is that these ingredients have high fiber content and carcass yields can be reduced when inclusion rates are not lowered before slaughter. Below are some research results showing a decrease in carcass yield and weight. One way to avoid a reduction in carcass yield is to reduce or withdraw the byproducts in late finishing.





Many producers have adopted a feeding program to introduce byproducts in early pig diets and then lower the levels toward the last few diets before marketing to avoid the carcass yield reduction. If ingredients are introduced too fast then pigs will go off feed and vices may occur. When byproducts are misused vices can occur. For example, one week DDGS is in the diet then the next week DDGS is taken out and other ingredients are used like wheat midds or bakery meal, then the week after DDGS are back in the diet. Being inconsistent will cause problems to occur such as poor growth and vices. Being consistent is very important and the key to managing the use of byproduct ingredients.

Economics do favor the use of DDGS even if there is a carcass yield reduction. Up to \$2.00 to \$5.00 per pig can be saved when using DDGS.

A good website for resource information on the use of DDGS is [www.ksuswine.org](http://www.ksuswine.org). Here you can use your individual ingredient prices and the calculator will estimate the cost savings and also the net return after carcass yield reduction.

## Typical Level of DDGS in Life-cycle Diet Programs

Phase	Live wt.	Diet %		Comment
		Typical	Extreme	
Nursery 3	11	5	10	Slow Exposure
Nursery 4	16	10	20	
Fin 1	23	15		SID Formulation
Fin 2		20		
Fin 3		25	40	Carcass IV
Fin 4		20		
Fin 5		15		
Fin 6	130	10		Yield Preserved
Gestation		20 to 40	50	Toxin Confidence
Lactation		10 to 20	25	GES Exposure !

**Net Revenue: \$2.25 – 3.00 / pig**

### Special Considerations for Sows

When introducing byproducts to sows, several factors must be considered. The first is to make sure the ingredient is free of mycotoxins. If the price of a byproduct is very cheap then there may be issues with mycotoxins or nutrient values. Introduce the ingredient slowly in the gestation diet first at maximum of 5%. After 2 to 3 weeks, increase the level another 5% if you are targeting 10%. Then start with the lactation diet at 5% for another 2 to 3 weeks before increasing the level again.

When feeding byproducts to sows make sure the same ingredient is in both the gestation and lactation diets. This will help with consistency of the feed and sows transitioning back to the gestation feed after being on lactation feed for 3 to 4 weeks. Being consist is very important when feeding sows alternative ingredients.

The last issue when managing the use of alternative feed ingredients is that the bulk density is different with ingredients with higher fiber content. If high fiber ingredients are used, make sure your mixer is not over loaded. Once too many ingredients are put into the mixer, smaller inclusion ingredients, like phytase, synthetic amino acids, vitamins, and minerals, will not get properly mixed. Just because the mixer may be rated at 3 tons, does not always mean you can get that much volume inside when using wheat midds, DDGS, bakery, or other byproducts. Do a mixer efficiency test to make sure your ingredients are being mixed right. You may have to lower your batch size down to 2 or 2.5 tons to get all the volume to fit.

The same can be said for feed trucks and feed bins. This can cause an increase in feed mill charge and delivery.

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